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ABSTRACT

Many psychological theories point to the importance of siblings in individual personality development. The impact of sibling status on interpersonal and achievement orientation was examined with undergraduates (N=1782) who completed a series of objective personality measures and a background questionnaire. Sibling status was defined in terms of four groups: only, first-, middle-, and last-borns. First-borns scored significantly higher in self-esteem than last-borns; only and middle-borns did not score differently from any of the other groups. Only children exhibited a stronger internal locus of control and scored higher on the self-centeredness item than other groups. No relationship was found between sibling status and loneliness. In terms of achievement, first- and middle-borns scored more competitively than last-borns. Only and first-borns had higher aspirations than later-borns. No sibling status effects were found in the areas of mastery, willingness to work, or personal concern about the costs of achievement. Results suggest that the impact of gender and family size on these sibling status effects are areas in need of further assessment. (NRB)

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ONLY CHILDREN, ACHIEVEMENT, AND INTERPERSONAL ORIENTATION

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Only Children, Achievement, and Interpersonal Orientation[1]

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Presented at the 88th Annual Convention of the APA, Montreal, 1980

A study was conducted to examine the impact of sibling status on achievement and interpersonal orientations. Undergraduates (N=1782) were paid to complete a series of objective personality measures and a background questionnaire. Sibling status was defined in terms of four groups: only, first, middle, and last borns. Sibling status effects in achievement orientation were found with competitiveness and educational aspirations but not mastery, willingness to work, or personal unconcern about the costs of achievement. In terms of interpersonal orientation, sibling status effects were obtained in locus of control, self-esteem, and self-centeredness, but not loneliness. The impact of gender and family size on these sibling status effects were assessed and the relative strengt of the sibling status effects were compared to those associated with gender.

Many psychological theories point to the importance of siblings for personality development (For example: Adler, 1932; Toman, 1976; Schachter, 1959; Stotland, Sherman & Shaver, 1971). The basic rationale of all these theories is that during childhood the presence of siblings provides children with interpersonal experiences which help form the child's overall personality.

The purpose of this study is to examine the impact of siblings on two areas of personality functioning, interpersonal and achievement orientations. As used here, interpersonal orientation represents those personality characteristics involved in one's relationships with others. In this study, these include self-esteem, locus of control, loneliness, and self-centeredness. Achievement orientation represents achievement motivation and educational aspirations.

The impact of siblings on these two personality domains has been intensively studied (See reviews: Adams, 1972; Falbo, 1977; Schooler, 1972; Sampson, 1965). However, most previous research has failed to include only children as a distinct comparison group. In the past, only children generally have been combined with first borns or omitted from the sample. This is unfortunate because a group who never had siblings should be considered essential to the examination of the effects of siblings on personality development. Therefore, the impact of siblings will be conceptualized here in terms of sibling status which represents four types of sibling situations: only, first, middle, and last borns.

Although there has been considerable interest in the impact of siblings on the development of interpersonal orientations, the research in this area contains inconsistent and sometimes even contradictory results. Self-esteem is a good example. Using a representative sample, Kaplan (1970) found that last borns were more likely to be in the high self-esteem group than middle or first (and only) borns. This finding was explained in terms of social comparison theory (Zimbardo & Formica, 1963). However, further analysis of Kaplan's result indicated that this finding held up only for white males from the higher social class group. Contradictory results were obtained by

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Rosenberg (1965) who found that only borns had higher self-esteem than all others. However, no test of significance for Rosenberg's data was reported and the difference between only and nononly borns appears to have occurred only for males, especially Jewish males. Somewhat consistent with this result is that of Coopersmith (1967) who reported that among adolescent boys, only and first borns were overrepresented in the high self-esteem group.

The impact of siblings on locus of control has received very little attention despite the plausibility that such a relationship exists. This plausibility is based on the notion that older siblings frequently are held responsible for their younger siblings and this repeated experience may lead early borns to develop a more internal locus of control than later borns. Consistent with this expectation are the results of Crandall, Katkovsky, and Crandall (1965) who found that among their older subjects (sixth through twelfth grade), early borns scored more internally than later borns. Unfortunately, no relationship between sibling status and locus of control was found among their younger subjects (third through fifth grade).

The last two personality areas considered within the interpersonal orientation category are included here because popular thinking regards these personality characteristics as related to having siblings. Specifically, people regard those who grow up without siblings as lonelier and as more self-centered than those who have siblings (Thompson, 1974). In fact, the personality consequences of growing up without siblings are popularly considered to be so negative that the most common reason cited for having a second child is to prevent the first from becoming an only child (Solomon, Clare, and Westoff, 1956).

Even though there is no previous psychological research specifically focused on examining the validity of these popular beliefs, it seems likely that the absence of siblings deprives a child of the interpersonal stimulation associated with siblings. This deprivation may result in the child acquiring persistent feelings of loneliness and self-centeredness.

Therefore, this study will test the following three hypotheses about the impact of sibling status on interpersonal orientation. These hypotheses represent the preponderance of previous research or, where lacking, popular thinking:

Only and first borns will have higher self-esteem than later borns.

Only and first borns will have a more internal locus of control than later borns.

Only children will be lonelier and more self-centered than people who grew up with siblings.

Sibling effects in achievement motivation have been explained in terms of the classic rationale regarding the origins of achievement motivation within the child (Winterbottom, 1958). According to this rationale, achievement motivation is fostered by parents imposing relatively high standards of behavior on their children at relatively early ages. Given that the parents of first and only children are relatively inexperienced with children, they are generally thought to expect too much from them. In fact, there is evidence that first and only borns receive greater parental pressure for more mature behavior at earlier ages than do later borns (Clausen, 1966; Kammeyer, 1967).

Unfortunately, the evidence supporting the greater achievement motivation of only and first borns is mixed. Some investigators have reported that first and only borns have higher achievement motivation scores than later borns (Sampson & Hancock, 1967; Angelini, 1967); while, others have failed to find any sibling status effects (Munz, Smouse, & Letchworth, 1968; Rosen, 1961; Rosenfeld, 1966).

In addition to achievement motivation, level of aspiration is considered a causal element in achievement (For review: Weiner, 1972). Schachter (1963) and others have speculated that the reasons first and only borns achieve more than later borns is that these early borns obtain greater education. Indeed, studies have demonstrated that only and first borns are overrepresented among college students (Bayer, 1967; Schachter, 1963). Although the reason for this overabundance is unclear, it is possible that only and first borns have higher educational aspirations than later borns and these aspirations lead them to pursue a higher education.

Overall, although not all previous achievement research results support the existence of a sibling status effect in achievement motivation, those that do are consistent with the following hypothesis:

Only and first borns will have greater achievement motivation than later borns.

Furthermore, given that only and first borns were overrepresented among university students, it seems likely that:

Only and first borns will have higher educational aspirations than later borns.

In testing all hypotheses, this study will consider the potentially contaminating influences of social class and family size. Social class and family size are called "potentially contaminating" because in the general population, as in selected samples, these three factors are interrelated (Adams, 1972). For example, middle borns are more likely to come from larger families than first or last borns. Further, social class is negatively related to family size. Consequently, if sibling status is the only factor considered in the data analysis, there is a good chance that the effects attributed to birth order are really brought about by social class or family size, or both. In fact, it is likely that the contradictory results frequently reported in the birth order literature is brought about by the failure to consider the impact of social class and family size on the birth order findings (Adams, 1972). In the present investigation, the impact of both family size and social class on sibling status will be examined. Further, the present sample represents a wide range of social classes.

Method

Subjects: 1785 undergraduates (841 males; 944 females) were paid $3.00 for participating an a survey. Subjects were recruited by means of advertisements placed in the student newspaper. Participation consisted of completing a series of objective personality instruments and a background questionnaire. Subjects worked at their own pace, but most finished in about 40 minutes.

Because few of the respondents during the mass survey were only children, they were specially recruited by advertisements placed in the student

newspaper. To prevent nononly children from misrepresenting themselves in order to obtain money, the research assistants privately told persons answering the only child advertisement that they could fill out the instrument and be paid $3.00 even if they were not only children. No public disclosure of their sibling status was required. Instead, the subjects were asked to be honest in describing their sibling status in their background questionnaire. In this way it was determined that sixteen percent of the students responding to the only child advertisement were not only children and the data collected from these students were omitted from the analyses reported here.

Subjects were told that the purpose of the study was to investigate the beliefs and preferences of university students about everyday matters. This description was followed by a common parlance description of the scales within the survey. For example, the locus of control measure was described as "a measure of the extent to which you feel that what you do makes a difference in determining what happens to you."

To avoid the impact that race or minority status may have on the subjects' responses to the instruments, only data collected from whites (excluding Mexican-Americans) were analyzed here. Since the majority (86%) of the original sample were white (specifically, Anglo), this elimination of nonwhites did not result in a severe reduction in sample size. Table 1 presents the distribution of subjects by sibling status and gender groups.

Table 1

Distribution of Sample by Sibling Status and Gender

		Sibling Status				
		Only	First	Middle	Last	Total
Gender	Men	107	242	246	214	809
	Women	139	232	318	222	911
	Total	246	474	564	436	1720

Note: These frequencies represent the number of white (Anglo) subjects. Differences from these frequencies reported in the results are due to missing data.

Instruments: There were four objective personality inventories presented to the subjects. One was the Work and Family Orientation Scale (WOFO) which contains four achievement motivation scales plus nine items measuring other achievement related topics. Devised by Helmreich & Spence (1978), the four WOFO scales measure competitiveness, desire for mastery, willingness to work hard, and personal unconcern regarding the negative interpersonal consequences of achievement.

This objective measure of achievement motivation was selected because it considers achievement motivation as a multidimensional construct. Several recent reviews of the literature indicate achievement motivation should be considered and measured as a multidimensional construct (Spence & Helmreich, 1978; Weinstein, 1969). The WOFO was also suitable for use here because it

had received sufficient psychometric review to establish its reliability and validity (Helmreich & Spence, 1978).

One of the nine additional items on the WOFO asked subjects to indicate the lowest amount of education they would be satisfied with. The selections ranged from high school graduation to an advanced professional degree (PhD, MD, Law degree, etc.). Responses to this item were considered as a measure of educational aspiration.

Locus of control was measured by a modified version of Rotter's I-E scale (Rotter, 1966). The modification consisted of taking each of the 46 items from the original measure and asking subjects to express their agreement with these items by using a five point scale. The original format asked the subjects to choose between two items, one representing an "internal" and the other, an "external" position. In the modified version used here, the order of the items were randomly mixed so that they did not alternate between internal and external items. In addition, there were twelve filler items in the original scale which were not included in the modified version. This modification allowed for the separate measurement of internality from externality. Previous investigations (Collins, 1974) comparing locus of control scores obtained by forced choice versus Likert scale items have found these scores to be highly correlated ($r = .82$). The modified version was used here because several investigators have demonstrated that the original Rotter scale, when factor analyzed, produces more than a single factor (Collins, 1974; Gurin, Gurin, Lao, & Beattie, 1969; Lao, 1970; Mirels, 1970).

The self-esteem measure used here is the short form of the Texas Social Behavior Inventory (Helmreich & Stapp, 1974). This 16-item scale was selected because it measures an interpersonal aspect of self-esteem, a social self-confidence.

The loneliness measure used here was the UCLA Loneliness Scale (Russell, Peplau, & Ferguson, 1978). This 20-item scale was devised to measure a persistent feeling of social alienation.

Because there is no objective scale of self-centeredness, this construct was measured here by a single item which was placed in the background questionnaire. The item: "How often have people said to you that you think only of yourself?" was followed by four choices: never, once or twice, occasionally, and frequently.

Data Analysis: The data were analyzed by means of a series of statistical tests. First, separate multivariate analyses of covariance were conducted on the achievement and interpersonal orientation scores. Second, discriminant analyses were conducted in order to elaborate the multivariate results. Third, because the discriminant analyses were unsuccessful, a series of univariate Fs were conducted to determine the effect of sibling status and gender on each dependent variable. Fourth, the interpretation of the sibling status effects was aided by multiple, post-hoc comparisons made between each sibling status. Finally, in order to consider the effect of family size on the sibling status results, multiple one-way analyses of covariance were conducted.

The covariate in all covariate analyses was one of two possible indices of social class: parental education and father's occupation. Parental education was the combined educational levels attained by both parents. Father's occupation was ranked according to a five-part occupational prestige scheme (Helmreich, Wilhelm, & Stapp, 1975).

Finally, to determine the influence of family size on the sibling status effects found in the univariate analyses of covariance, multiple one-way analyses of covariance were performed. This method of analysis was necessary in order to retain the only child group and simultaneously examine the impact of family size on the dependent measures of this study. Simply using family size as an independent variable was not possible because one of the sibling statuses (only children) came from a single family size. The family size analyses were focused on elaborating the general birth category effect so that one could determine if these effects were consistently found within several family sizes. For example, if the post-hoc comparisons indicated that only children scored differently from all other birth categories, the scores of only children were compared to the scores of first borns of two-child families and then to the last borns of two-child families. Then, the scores of only children were separately compared to the scores of the first, middle, and last borns of three-child families, and so on. These comparisons were conducted separately for each sex. The family size groups included in these analyses ranged from one to four children. Beyond four, the frequencies of subjects within each sibling status became uneven and small, thereby making statistical comparisons difficult or impossible.

Results

The results are divided into five sections. First, the inter-item reliabilities for the four achievement and four interpersonal scales are presented. Second, there is a brief description of the social class characteristics of the sample. Third, the results of the multivariate analyses are portrayed. Fourth, the results of the univariate analyses of covariance and the subsequent post-hoc comparisons between the sibling statuses are presented. Fifth, the family size results are described.

Reliabilities. The inter-item reliabilities produced by the four interpersonal orientation scales were all relatively high. The alpha coefficient for the internality scale was .62; for the externality scale, .77; self-esteem, .85; and loneliness, .93.

The inter-item reliabilities for the four WOFO scales were similar to those reported by Helmreich & Spence (1978). The alpha coefficients for the competitiveness scale was .68; for the mastery scale, .61; work, .68; and personal unconcern, .50.

Social Class. Within the sample, the average level of parent's education was "some college, but no degree," the average father occupation was lower professional and managerial. Parent's education ranged from some high school to a graduate degree; father's occupation extended from rural or domestic worker to highly paid and educated professional.

Since there were no differences between the results obtained from the analyses using parents' education as a covariate and the same analyses using father's occupation as a covariate, only one set of results (those involving parent's education) is presented here.

Multivariate Analyses. The results of all multivariate analyses of covariance indicated that both independent variables, Sibling Status and Gender, produced significant multivariate Fs (the interaction was not significant). To aid in the interpretation of these multivariate results, four discriminant analyses were conducted; these analyses were conducted separately for each gender and personality orientation. In these analyses, the grouping

variable was Sibling Status and the discriminating variables were the five dependent variables from the achievement analyses plus social class or the five dependent variables from the interpersonal orientation analyses plus social class. The results of all four analyses (gender x personality orientation) indicated that a good separation of the sibling statuses on the basis of achievement or interpersonal scores was not possible. Overall, the highest canonical correlation obtained was .20 and in the classification stage, the greatest percentage of correctly classified subjects was only 38%. However, this failure does not mean that sibling status has no relationship to the personality characteristics considered in this study. Instead, it means that a linear combination of all the achievement or interpersonal variables that strongly differentiated the four sibling statuses could not be found. Since this multivariate approach failed to yield strong results, the impact of sibling status was investigated further by a series of univariate analyses of covariance.

Univariate Analyses: Achievement Orientation. Competitiveness is the only one of the four WOFO scales that yielded a significant sibling status result, $F(3,1454)=2.59$, $p = .05$. The means for the four sibling statuses are presented in Table 2.

Table 2

Adjusted Mean Achievement Orientation Scores by Sibling Status

Measure	Only	Sibling Status First	Middle	Last
Competitiveness	17.21	17.43	17.29	16.75
Educational Aspiration	3.23	3.27	3.13	3.08

Note: Higher scores indicate greater amounts of the personality construct. A score of 3 on educational aspiration means that college graduation is the lowest level acceptable, while a 4 score means that a graduate degree is the lowest acceptable level.

Multiple comparisons between the groups indicated that first, $t(1475)=-2.44$, $p = .02$ and middle borns, $t(1475)=-2.03$, $p = .04$, had significantly higher competitiveness scores than last borns. The scores of only children did not differ from any of the other groups and the scores of first and middle borns did not differ significantly from one another.

The level of aspiration item also produced a significant Sibling Status main effect, $F(3,1483)=6.04$, $p = .005$. The means are presented in Table 2. Multiple comparisons indicated that first borns had higher educational aspirations than middle borns, $t(1470)=-2.96$, $p = .003$, and last borns, $t(1470)=-3.00$, $p = .0001$. In addition, only children had significantly higher educational aspirations than last borns, $t(1470)=-2.64$, $p = .008$. The scores of only children were not significantly different from the scores of first and middle borns, nor did the scores of middle borns differ from the scores of last borns.

The univariate analyses indicated that the Gender variable produced several significant results. Women ($\bar{X}=17.33$) scored higher than men ($\bar{X}=16.72$) on the work scale, $F(1,1453)=15.21$, $p = .001$. In contrast, men scored higher

than women on both competitiveness, $F(1,1453)=11.86$, $p = .0006$, and educational aspiration, $F(3,1453)=5.94$, $p = .02$. The mean competitiveness score for men was 17.54 and for women, 16.85. The educational aspiration mean for men was 3.22; while for women, the mean was 3.12.

The Gender and Sibling Status variables did not produce a significant interaction in any of the achievement analyses.

Tests of the covariate, parent's education, indicated that it met the assumption of homogeneity of variance, Cochrans C=.44, $p = .37$. Also, the regression analyses for the within cells error term indicated that parents' education did not interact significantly with any of the dependent variables.

Univariate Analyses: Interpersonal Orientation. Four of the five dependent measures examined produced significant Sibling Status main effects. These are: internality, $F(3,1376)=3.01$, $p = .03$; externality, $F(3,1376)=2.93$, $p = .03$; self-esteem, $F(3,1376)=3.11$, $p = .03$; and the item intended to measure self-centeredness, $F(3,1376)=11.22$, $p = .00001$. Loneliness did not produce a significant Sibling Status main effect. The means are presented in Table 3.

Table 3

Adjusted Mean Interpersonal Orientation Scores by Sibling Status

Measure	Sibling Status			
	Only	First	Middle	Last
Self-Esteem	58.97	60.06	59.33	58.29
Internality	87.36	85.02	84.46	83.85
Externality	59.22	60.57	60.39	62.23
Loneliness	40.07	40.61	40.13	40.40
Self-Centeredness Item	2.40	2.25	2.04	2.09

Note: With all dependent measures, higher scores indicate greater amounts of the personality construct. The Self-Centeredness Item is the single item indicating the frequency with which one is told he/she thinks only him/herself. A mean score of 2 means a "once or twice" rating, while a mean score of 3 means an "occasionally" rating.

To determine the significance of the differences between the sibling status, multiple, post-hoc comparisons were conducted on these means which were adjusted for the covariate, parent's education. For the internality measure, these multiple comparisons indicated that only borns scored higher than first borns, $t(1455)=-1.95$, $p = .05$, middle borns, $t(1455)=-2.46$, $p = .01$, and last borns, $t(1455)=-2.91$, $p = .004$. None of the other comparisons was significant. Multiple comparisons conducted on the externality measure indicated that only borns scored significantly less externally than last borns, $t(1422)=2.56$, $p = .01$. None of the other comparisons was significant.

Only one of the self-esteem comparisons was significant. First borns scored higher than last borns, $t(1461)=-2.76$, $p = .006$. Only and middle borns did not differ significantly from any of the other birth categories.

Finally, the multiple comparisons conducted on the self-centeredness scores indicated that only borns scored higher than first borns, $t(1475)= -2.18$, $p = .03$, middle borns, $t(1475)=-5.26$, $p = .0000$, and last borns, $t(1475)=4.38$, $p = .000$. First borns also had higher scores than middle, $t(1475)=-3.64$, $p = .003$, and last borns, $t(1475)=-2.61$, $p = .009$. Middle and last borns did not differ significantly from one another.

The univariate analyses indicated that Gender produced three significant main effects. Women ($\bar{X}=61.57$) scored higher on the external scale, $F(1,1376)= 4.76$, $p = .03$, than men ($\bar{X}=59.83$). Men scored higher on the loneliness, $F(1,614)=5.98$, $p = .02$, and internality scales $F(1,1376)=7.57$, $p = .006$, than women. The means were: (1) loneliness: men, 41.45, women, 39.22; (2) internality: men, 88.66, women 83.90.

The Gender and Sibling Status variables did not produce significant interactions in any of the interpersonal orientation analyses.

The covariate met the assumption of homogeneity of variance, Cochrans $C=.15$, $p = .09$. Also, the regression analyses for the within cells error term indicated that parent's education did not interact significantly with any of the dependent variables.

Family Size. In this sample, family size averaged 3.2 children and ranged from one to thirteen children. In order to determine whether the sibling status results could be repeated within the two- to four-child families, multiple one-way analyses of covariance were conducted comparing the sibling statuses found to be different during the post-hoc analyses. Separate analyses were conducted for each gender. The exact comparisons made during these analyses were determined by the nature of the sibling status effect. To reduce the chance of Type I errors, only Fs with p values above .01 were considered significant.

First, the two sibling status effects found in the achievement variables were examined. Given that the sibling status effect in competitiveness indicated that first and middle borns scored higher than last borns, a series of one-way analyses repeated this comparison within two- to four-child families. This means that for two-child families, the competitiveness scores of first borns were compared to those of last borns. Then, for members of three-child families, the scores of first and middle borns were combined and compared to the scores of last borns. The same procedure was followed for members of four-child families. None of these comparisons produced significant results.

Similarly, since both first and only children scored higher than last borns in educational aspirations, the family size comparisons involved comparing the combined scores of only and first borns to those of last borns from two- to four-child families. None of these comparisons produced significant results.

Second, the sibling status effects found within the interpersonal orientation area were examined. The sibling status finding with self-esteem was that first borns scored higher than last borns. Therefore, the investigation of the influence of family size on the effect involved three comparisons within each gender; that is, comparisons of last to first borns within the two-, three-, and four-child families. None of these produced significant results.

The sibling status effect with externality indicated that only borns scored less external than last borns. To determine if this effect was repeated in the two- to four-child family sizes, one-way comparisons were made between only borns and last borns in two-, three-, and four-child families. For men, none of these comparisons produced significant results. For women, only one of these comparisons was significant. Female only borns scored significantly less external than female last borns of two-child families, $F(1,170)=6.91$, $p = .009$. For three- and four-child families, the difference between only and last borns was of borderline significance. None of the other comparisons was significant.

Then, the sibling status effects in internality and self-centeredness were examined. To determine the impact of family size on the finding that only children scored higher on both of these variables than any other group, the scores of only children were compared to each birth category within the two- to four-child families. For men, none of these comparisons was significant. However, for women, a few significant differences were found between only children and others. Overall, only children were not significantly different from either first or last borns from three- or four-child families. Only children also did not differ from first borns of two-child families. However, female only children scored more internally, $F(1,177)=11.31$, $p = .001$ than female last borns of two. In comparison to three-child families, female only children scored more internally, $F(1,176)=6.88$, $p = .009$ and had higher scores on the self-centeredness item, $F(1,178)=13.89$, $p = .001$ than female middle borns. When compared to four-child families, female only children also scored higher on the internality scale, $F(1,170)=10.58$, $p = .001$, and the self-centeredness item $F(1,173)=7.48$, $p = .007$ than female middle borns.

With self-centeredness, there was also the sibling status effect of first borns scoring higher than middle or last borns. The family size comparisons here involved comparing the scores of first borns to the combined scores of middle and last borns within the two- to four-child families. None of these comparisons was significant.

Discussion

What do the results of this study indicate about the impact of siblings on personality development? First of all, sibling status appears to be a less powerful factor in determining personality differences than gender. The averaged univariate F tests associated with gender were considerably larger than those associated with sibling status. Furthermore, the weakness of the sibling status effect was demonstrated by the fact that only 38% of the subjects were classifiable on the basis of the relationship between interpersonal or achievement scores and sibling status.

Despite this weakness, the sibling status effects reported here do support the conclusion that siblings have some impact on personality development. For example, self-esteem was related to sibling status, but the results only partially supported the hypothesis. Instead of only and first borns scoring higher than all others, first borns excelled over last borns and only and middle borns did not score differently from any of the other groups.

However, the multiple comparisons made to consider the impact of family size on this relationship resulted in finding no differences between first and last borns in two-, three-, and four-child families. There are two likely reasons for this discrepancy. First, the sibling effects found with

self-esteem may occur only in larger families (that is, family sizes greater than four). According to this explanation, the sibling status effects would not have been replicated because the family size comparisons involved family sizes smaller than five. Second, it is possible that these sibling effects are so weak that they emerge only when the sample size is large. Specifically, the within family size comparisons were made with subsamples, (ranging in size from 31 to 179 of the larger sample; while the overall sibling status effects were found with data produced by the entire sample (N-1720). Either or both of these could account for the failure to repeat the sibling status effects within the two- to four-child families.

With internality, only children scored higher (indicating a strong internal locus of control) than any other sibling status group. This is only partially consistent with the original hypothesis which predicted that first and only borns would score higher than later-borns. None of the sibling present groups differentiated themselves in their internality scores. The consideration of family size helped to refine the interpretation of this difference between only children and others. While, among men, no difference between sibling status groups within the two- to four-child families could be found, female only children scored more internally than last borns of two-child families, and middle borns of three- and four-child families. These findings indicate that among men, only children are as internally oriented as members of two- to four-child families. Only among women do the differences between only children and members of small families emerge.

Note that even though the relationship between sibling status and externality was only of borderline significance, this relationship was consistent with that found between internality and sibling status. That is, only children had the lowest externality scores, while last borns had the highest externality scores.

Consistent with popular thinking, only children scored higher on the self-centeredness item than any other sibling status groups. It should be noted that this single item measures self-perceptions of self-centeredness. One might argue that true self-centeredness consists of lacking awareness of being self-centered. Furthermore, the family size results of this study indicated that this finding should be amended to include the moderating factors of family size and gender. Specifically, among,men, no differences between only children and members of two-, three-, or four-child families were found. Similarly, among women, only children did not differ from members of two-child families or first ar last borns of three- and four-child families. However, female only children scored more self-centeredly than female middle borns of three- and four-child families.

Although a relationship between sibling status and loneliness was predicted, none was found. Despite the fact that the failure to support a hypothesis does not prove the null hypothesis, these results lend credibility to the conclusion that the lack of siblings during childhood does not necessarily lead to chronic loneliness in young adulthood.

In terms of achievement, competitiveness was the sole factor of achievement motivation that demonstrated a relationship to sibling status. While first and only borns were predicted to have higher scores than later borns, the results indicated that first and middle borns scored more competitively than last borns. Only children did not differ from any of the sibling groups and first borns scored similarly to middle borns. Also, sibling status was related to educational aspiration. Here, however, the hypothesis was totally supported. Only and first borns had higher aspirations than later borns.

It is significant that the overall sibling status effects found in competitiveness and educational aspiration were not repeated within the two- to four-child families. As with the self-esteem results, it is not known whether these failures at repeating the sibling effect within family sizes mean that this sibling effect occurs only in large families or whether the sibling effect is so weak that it requires large samples in order to emerge.

Overall, the results demonstrate three different types of sibling status effects. First, there were sibling status results in which first borns differed significantly from the last borns, but only children differed from none of these sibling status groups. Evidence for this type of effect came from the competitiveness and self-esteem findings. This effect appears to be related to the presence of siblings and one's position relative to these siblings.

Second, there were sibling status results which indicated that only children had more extreme scores than any of the sibling present groups. The personality characteristics demonstrating this effect were internality and self-centeredness. This type of effect appears to be based on the absence of siblings, with greater absence (as in the case of only children or people from small families) leading to greater self-orientation.

Third, one sibling status finding indicated that first and only borns were similar and that they both differed significantly from last borns. This finding occurred with educational aspirations. Given that only and first borns are indistinguishable here, the causal factor cannot involve the presence or absence of siblings. Perhaps this effect is brought about by the special affectional relationship first and only borns share with their parents (Kidwell, 1978; Lasko, 1954). Despite this, they are expected to achieve higher standards of behavior at earlier ages than later borns (Clausen, 1966; Kammeyer, 1967). This combination of positive attention with high expectations may lead only and first borns to develop the persistent tendency to set relatively high standards for themselves.

The relative powerfulness of the gender effects found in this study are testimony to the importance of gender for personality development. The gender effects found in this study are largely consistent with those found previously. Specifically, similar gender differences in willingness to work, competitiveness, educational aspirations (Spence & Helmreich, 1978) and locus of control (Lefcourt, 1976) have been presented elsewhere. However, Spence & Helmreich (1978) found a gender difference in mastery which was not replicated here. Also, previous loneliness research (Russell, Peplau, & Ferguson, 1978) reported no gender differences; while in the present study, a significant gender difference was found. The most likely reason for these two discrepancies lies in subject selection differences between the present and past research. Subjects in the present study were paid for thier participation and this incentive was advertised in the student newspaper. In contrast, the original loneliness sample consisted of unpaid volunteers who either participated to receive course credit or to alleviate their loneliness. The original achievement motivation sample also consisted of undergraduates receiving course credit. Given that all of these recruitment procedures probably led to obtaining samples somewhat unrepresentative of the total undergraduate population, it is impossible to determine how generalizable the present results are or which gender results (past or present) are the "correct" ones.

Note that gender and sibling status effects did not interact in this study. This suggests that the impact of sibling status on achievement and interpersonal orientation is not different for men and women. This finding does not deny the possibility that the sex configuration of siblings has a significant impact on personality development. The impact of sex configuration was simply not considered in this study.

The current study points to the necessity of having large samples, containing only children as a comparison group and a relatively wide range of family sizes and social classes in order to appreciate the complexity of sibling status effects on personality development. The large sample is necessary because of the general weakness of sibling effects. A comparison group of only children aids in distinguishing sibling effects in terms of those brought about by the presence of siblings vs. those related to the relative absence of siblings vs. those related to special parent-child relationships inherent in certain sibling statuses. Finally, a wide-range of social classes and family sizes is necessary in order to establish the generalizability of the results. Future research should be devoted to examining the processes whereby these sibling status effects take place.

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